SOIL SURVEY OF LEE COUNTY, ALABAMA.

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DESCRIPTION OF THE AREA.

Lee County lies on the east boundary line of the State of Alabama about midway of the State north and south and about 60 miles distant from Montgomery. It is bounded on the north by Chambers County; on the northwest, west, and southwest by Tallapoosa and Macon counties; on the south by Russell County; and on the east by the Chattahoochee River, which stream is here also the boundary between the States of Alabama and Georgia. The county is about 41 miles in extreme length east and west and 19 miles north and south, but the boundary is very irregular. The included area is 402,752 acres, or about 629 square miles.

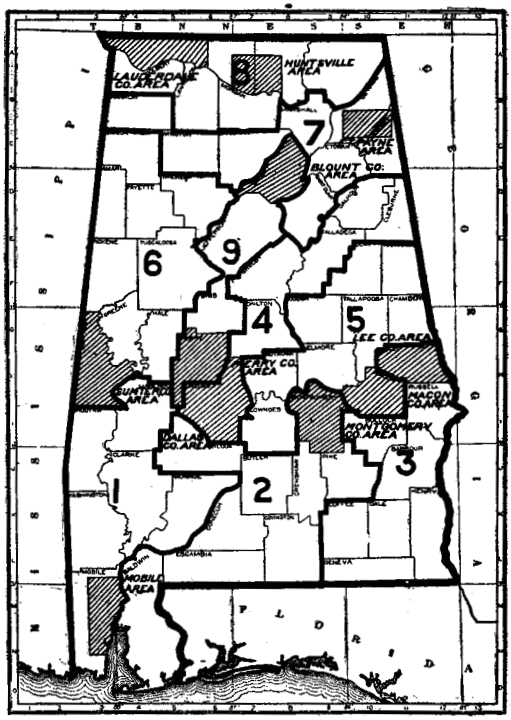

FIG. 11.—Sketch map showing location of the Lee County area, Alabama.

The surface features of Lee County are those of a high, rolling plateau which has been badly dissected and eroded by stream action. The topography of the county varies from rough, broken, and hilly to rolling, with some gently rolling and fairly flat areas occurring here and there. Possibly the highest elevation in the county is found along the northern boundary, in the projection of the county a little northwest of Opelika, where an altitude of 820 feet is reached. At Auburn the elevation is about 700 feet, while along the southern boundary it varies from 500 feet near the Macon line to about 250 feet toward the southeast corner of the county. Along Wachoochee Creek, just southeast of Valley, it is 480 feet. In the northwestern part of the

county, to the south of Roxana and along Sougahatchee Creek, are found the roughest and most precipitous areas. Many other broken and hilly areas occur along Chewacla, Halawachee, Osanippa, and Wachoochee creeks and in many places adjacent to the Chattahoochee River. Broad rolling areas were seen to the northeast of Opelika, around Salem, along the Opelika and Beulah road, and in the extreme southern part of the county. The most gently rolling and flattest areas lie between Auburn and Loachapoka and along the Western Railway of Alabama.

A ridge running through Opelika from northwest to southeast forms the drainage divide of the waters entering the Chattahoochee River and those flowing southwest out of the county. All parts of the county are well watered. The eastern part is drained by the Osanippa, Halawachee, Wachoochee, and Wetumpka creeks and the Chattahoochee River. These streams with their tributaries form an excellent drainage system. The western part of the county is well drained by Sougahatchee and Chewacla creeks and their numerous branches, together with several other smaller creeks. Most of the creeks have considerable fall and have carved out deep and narrow channels. Much water power could be developed along these streams, as well as a large amount from the rapids of the Chattahoochee River.

The country now included in Lee County was settled to a large extent a long time before the county itself was established. Lee County was formed in 1866 from parts of Chambers, Macon, and Russell counties. Most of the settlers came from Georgia and the Carolinas, but to-day the larger part of the rural population is composed of negroes. In the northwest part of the county in some places the white settlers are quite scattering, but a large number of negroes are seen. In the southern part of the county the proportion of whites is larger. Though a large part of the land is under cultivation, there is ample room and good opportunities for wide-awake farmers who desire to grow cotton, corn, oats, hay, and truck crops.

The chief town in the county is Opelika, which has a population of about 5,000, and is also the county seat. The town of next importance is Auburn, which is the home of the State agricultural experiment station and also of the Alabama Polytechnic Institute.

The county is well situated in regard to transportation facilities. The Western Railway of Alabama passes through the county in a northeast and southwest direction, affording excellent service. The Central of Georgia Railroad crosses the county in a northwest and southeast direction and a branch of the same road runs north from Opelika. The Chattahoochee Valley Railroad extends from West Point, Ga., and has about 3 miles of trackage in the county, the terminal station being Jester.

The county roads are in good condition in late spring, summer, and fall, except for the hills, rocks, and deep sand in many places. In the winter the clay roads are usually in very poor condition. These should be graded and then graveled. The roads could be macadamized in many places at a comparatively small cost, as plenty of road material is near at hand. Better roads would greatly enhance the value of land, save much time and wear and tear, and would enable the farmers to market their products at any season of the year.

Opelika is the chief market in the county for cotton and other farm products. Auburn is a fairly good market for vegetables and some cotton is also sold there. Loachapoka, Waverly, Salem, and Phœnix are markets of lesser importance. West Point, Ga., draws a little trade from the northeastern part of Lee County, while Columbus, Ga., just across the Chattahoochee River from the southeast corner of the county, is an excellent market for cotton and vegetables.

CLIMATE.

The climate of Lee County is that of the warm temperate zone. The average annual temperature is 67.6. The coldest months are December, January, and February, with an average temperature of about 46°, the mercury falling to 16 above zero occasionally. Slight freezes and light snows of short duration sometimes occur. The cold winds in the winter are from the northwest and northeast, and the warm winds blow from the south and are usually followed in a day or so by rain. The hottest months are July and August, with an average temperature of 80°. The average annual precipitation is 48.5 inches and is fairly well distributed throughout the year, but January and February are generally considered the rainy months. Droughts are not uncommon during the hot months.

The following table gives the normal monthly and annual temperature and precipitation as recorded by the Weather Bureau observer at Opelika. The dates of the first and last killing frosts are also shown. The average date of the last killing frost in the spring is March 20, and for the first in the fall, November 10. This gives a growing season of two hundred and thirty days for the tenderest vegetation. The mild climate, coupled with the high altitude and the excellent drainage and good water, insures healthfulness. A few crops can be grown with profit during the winter months. A long grazing period for cattle is afforded. Much farm work in the way of clearing land, making compost manure, and even considerable plowing can be done in the coldest months of the year.

Normal monthly and annual temperature and precipitation.

Month.	Opelika.		Month.	Opelika.	
	Temperature.	Precipitation.		Temperature.	Precipitation.
	°F.	In.		°F.	In.
January	43.6	4.81	August	80.5	4.44
February	46.4	5.27	September	74.5	2.79
March	56.2	4.49	October	64.3	3.18
April	63.5	3.52	November	56.0	3.30
May	71.8	3.09	December	48.2	.45
June	78.7	3.77	Year	63.7	48.46
July	80.5	5.35			

Dates of first and last killing frosts.

Year.	Opelika.		Year.	Opelika.	
	Last in spring.	First in fall.		Last in spring.	First in fall.
1898	Mar. 4	Oct. 27	1902	Mar. 19	Oct. 29
1899	Mar. 29	Dec. 4	1903	Mar. 2	Oct. 25
1900	Apr. 1	Nov. 9	1904	Apr. 4	Nov. 28
1901	.....	.....	Average	Mar. 20	Nov. 10

AGRICULTURE.

The lands of Lee County, like a large section of the South, were once heavily forested to pine, oak, and hickory. The longleaf yellow pine was confined to the more sandy soils, while the hardwoods were characteristic of the clay lands. The early settlers, many of whom were slave owners, would clear a tract of land, farm it for a few years, and then abandon it, new fields being cleared each year. The land was planted to corn, oats, or wheat for a time and then devoted to the production of cotton, after which it was abandoned and allowed to grow up to old-field pine and scrub oak. Land was cheap and abundant and slave labor was plentiful. Landholdings were large, plantations of from 1,000 to 5,000 acres being common. In the early days cotton was the chief and almost the only money crop of the county. Considerably more grain was grown then than now. Corn, oats, wheat, and potatoes were grown in sufficient quantities to meet the demands of home consumption. Corn and oats were fed to stock, the former also being used to fatten hogs for bacon, while corn and wheat supplied the bread. An extensive rather than an intensive system of farming was the common practice and little or no regard was given to maintaining the productivity of the soil because it was cheaper to clear new lands than to attempt to fertilize and improve the old fields. Terracing was begun some forty years or more ago. A little commercial fertilizer was used in the early years. It became of general use about twenty years ago, and now at least $100,000 worth is used annually on the soils of Lee County.

Cotton is to-day, as it has always been, the ruling staple and the money crop of the county. Comparatively small quantities of corn, oats, potatoes, hay, wheat, and truck crops are produced. Not nearly enough grain and hay are grown to feed the stock and fatten the hogs and consequently large quantities of corn, oats, and hay, as well as bacon, are bought each year at high prices. This is an unfortunate condition, for enough of these products should be grown to meet at least the home demand. Only a few cattle and sheep are kept. Trucking is practiced to some extent in the southeast corner of the county, and this industry could be developed to a greater extent around Opelika. Some sugar cane is grown and an excellent quality of sirup for home use is manufactured. Sorghum and cowpeas are the chief hay crops, but only a little of each is grown. Oats, both winter and spring sown, are a minor crop, while wheat has been practically abandoned. A few peach orchards and some pear and plum trees were seen, besides some fine fig trees. There is so little specialization in the farming of this county that the adaptation of soils to crops has not been considered by the farmers. As more of the land is settled up and intensive cultivation becomes necessary it will be essential for the farmers to study their soils and see what crops are best suited to them. Cotton is grown on every type that can be farmed.

Unfortunately no systematic rotation of crops is practiced, and this is one of the direct causes of the low yields on many of the soil types. According to Professor Duggar, director of the State agricultural experiment station, the following four-year rotation would be suitable to the conditions here: First year, cotton; second year, corn, and cowpeas at last plowing; third year, oats, and after these are cut, cowpeas; fourth year, cotton again. He states that after turning under considerable pea-vine stubble it would probably be judicious to add a little lime.

On some soils in the county, especially on the Norfolk coarse sand and Norfolk sand, the present methods of cultivation are sufficient, since the soils are so loose and porous that only shallow plowing and cultivation are necessary. The methods of handling the Cecil types and the heavier types of the Norfolk series are, however, generally inadequate. These soils, especially the heavier Cecil soils, should be plowed deeper and should be well pulverized. The 1-horse plow should be replaced by the 2-horse plow and the "scooter" by sulky cultivators. The essential thing is to get the soil well prepared to a good depth and then shallow cultivation will meet every demand. The soils that should be plowed the deepest are the ones that are now merely scratched on the surface. The moisture conditions would be more favorable during the growing season if there were deep, loose seed beds to catch and retain the rainfall.

The farm labor is drawn entirely from the negro population, and is generally closely supervised and directed. There are a small number of wage laborers in the county, and these are paid from $8 to $15 per month and board. The day laborers generally become tenants as soon as they are able.

Probably not more than one-fourth of the farms in the county are operated by the owners. A few are rented for a part of the crop and a few on shares, the landowner furnishing the land, stock, feed for stock, and machinery, and receiving one-half of the crop. The common and almost exclusive method is to rent in "1-mule farms," which usually consist of about 30 acres. The rent paid is from 1 to 2 bales of cotton, depending on the quality of the land and proximity to the market, the renter paying for all manure or fertilizer used. In the southern part of the county a larger percentage of the farms are operated by the owners than in the northern part. In many instances the largest landowners live in Opelika or some town outside the county. They either furnish the tenant with provisions for the year or they stand his security for them at the store. In most cases the tenant gives a mortgage on the prospective crop. The high prices paid for provisions should be an incentive to diversified farming and the production as far as possible of all the necessaries on the farm.

Such a method of land tenure as that just described has a decided tendency to impoverish the soil, allows it to become eroded, and does not encourage the use of improved machinery.

The farms vary greatly in size, and it is difficult to give any true idea of the size of the average farm. There are many small farms, while on the other hand many plantations, some of 3,000 acres or more, were seen. The largest holdings probably lie in the northern part of the county.

The price of land has increased greatly within the last few years since cotton has been selling at 10 cents or more per pound. The best lands near Opelika and other convenient places along the railroads sell at from $10 to $30 an acre, the latter price being for well improved farms with good houses and outbuildings. Lands in the southern part of the county range in value from $8 to $17 an acre. Rough, stony, and badly eroded or recently abandoned land will not bring more than $5 an acre.

The Lee County area is susceptible of improvement in a great many ways, and it is only a matter of time when great advances in agriculture will take place. The soils of the Cecil series are for the most part strong and capable of being built up. Similar soils in other sections of the United States are producing several times the yields of the soils here. The soils need deeper plowing, a better preparation of the seed bed, the growing of leguminous crops, and the rotation of crops. The farmers should also make greater use of green manuring crops. The

Cecil soils will increase in value as diversified farming is practiced, because they are better suited to grain crops, cowpeas, and clover than the Norfolk soils.

The Norfolk soils, while suited to cotton, are not capable of being permanently built up like the Cecil soils, although some of them can be made fairly productive.

SOILS.

Lee County is interesting from a soil-survey standpoint because of the fact that there are two distinct physiographic divisions in the area, each containing several soil types. The soils found in these divisions are markedly different in origin and texture. The general boundary between these two divisions begins at the Macon County line in the southwest part of the area, between the Western Railway of Alabama and Sougahatchee Creek, runs in an eastward direction just to the north of Auburn, about 1 mile east of that place, swinging south to Chewacla Creek, then turns northeast to within 2 miles of Chewacla, and then follows a southeast direction until it leaves the county just north of Phœnix.

The physiographic division north of this, including about two-thirds of the county, comes within the metamorphic region of the pre-Cambrian or preceding ages, and comprises the southwest end of the Piedmont Plateau, which stretches across Georgia, the Carolinas, Virginia, Maryland, New Jersey, and up into Pennsylvania. The rocks in this division are hornblende gneiss, mica schists, granite, quartzite, hornblende schists, and mica slate. Fragments of quartz veins are also noticeable. The red color imparted to the soils and subsoils is chiefly from the iron in the hornblende. Over the greater part of the county these rocks have weathered to a depth of many feet, but in some places the partially decomposed rocks come close to the surface and outcrop near some of the streams and on a few knolls. The long-continued process of weathering and disintegration, together with great erosion, has given rise to distinct soil types with reddish-brown, grayish, and red surface soils and bright-red clay subsoils. These types belong to what is known as the Cecil series.

The other physiographic division, which covers the southern third of the county, consists of sedimentary material of the Lafayette formation, which has been laid down as a marine deposit on the much-eroded surface of the older rocks. This formation is characterized by sands, gravel, and yellow and reddish sandy clays. The weathering of this material produces five distinct soil types, the surface soils of which are usually gray or whitish in color and the subsoils yellowish. These soils belong to the Norfolk series, which are widely distributed within the Atlantic and Gulf Coastal plains. In addition to these soils there are small strips of Orangeburg sandy loam and small areas of Meadow.

Along the line of contact of the two physiographic divisions the soils are badly mixed and grade insensibly into one another. In some cases the surface soil will belong to the Norfolk series, while the subsoil will be typical of the Cecil series. Consequently no sharp line could be drawn between the soils over this zone.

The following table gives the actual and relative extent of each of the types:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Cecil sandy loam	155,584	38.6	Meadow	9,920	2.5
Cecil stony loam	69,056	17.1	Cecil clay	9,536	2.4
Norfolk coarse sand	57,408	14.3	Norfolk sand	8,704	2.2
Norfolk sandy loam	39,296	9.8	Rough stony land	4,928	1.2
Norfolk gravelly loam	30,336	7.5	Orangeburg sandy loam	128	.0
Cecil stony clay	17,856	4.4	Total	402,752	

CECIL SANDY LOAM.

The soil of the Cecil sandy loam consists of a light-brown, reddish, or grayish sandy loam of medium texture. A few quartz and mica-schist fragments are frequently seen on the surface, especially where the type grades into the Cecil stony loam. In some places a quite noticeable quantity of mica scales is observed in the soil. Scattered here and there throughout the type spots of red clay occur on the knolls and ridges, where the sandy covering has been washed off. Where the granitic rock comes near the surface the soil is coarser and not quite so productive as in the typical areas. In a few places a rather fine sandy loam or silty loam is found, but these areas were too small to be shown on the soil map. Small stony patches occur throughout this type, but more commonly in the northeastern part of the county. To the southwest of Waverly and in a few other localities the sandy loam surface is in some places from 15 to 24 inches deep. As a rule the Cecil sandy loam is a mellow and easily tilled soil, and it is only in a few places that the soil bakes badly, such areas usually containing some slaty fragments and considerable mica. In a few other spots considerable gravel is found in the surface soil.

The subsoil is a stiff, hard, crumbly red clay to a depth of 36 inches or more. There are spots, however, where the subsoil is somewhat tenacious. In a few localities where this type joins the Norfolk sandy loam, or where the soil is derived from granitic rock, the subsoil is of a reddish-yellow color. Occasionally a little mica is present in the subsoil; and sharp, angular sand particles are also encountered.

The Cecil sandy loam is the most important type mapped and covers about 39 per cent of the entire county. The largest development occurs in the northeastern part of the county. It is found typically developed around Opelika, Salem, Valley northeast of Auburn, southwest of Waverly, and along the Chattahoochee River. It occurs in

large extended areas, broken only by spots and strips of Cecil stony loam.

The characteristic surface of this type is broad and gently rolling to rolling and hilly. The more level surface occurs in the large interstream areas and near some of the streams. The more hilly and broken areas are seen along the Chattahoochee River and several of the larger creeks. In many places along the hillsides this soil is so badly gullied as to be unfit for cultivation. The drainage is generally good, but on the rolling areas it is necessary to use terraces and hillside drains to prevent serious erosion. Deeper plowing of the soil and seeding to some grass crop would dispense with many of these terraces.

The Cecil sandy loam is a residual soil derived from the weathering of gneiss, mica schist, and granite. These rocks in most places have decayed to a considerable depth, and the finer particles in the surface soil have been carried away in suspension. The granite, being more resistant, has not weathered as deeply as the other rocks, and knolls are seen where this rock comes near the surface. The quartz, occurring in veins here and there, has been broken up and fragments are found scattered on the surface.

The larger part of the Cecil sandy loam is under cultivation, the remainder being abandoned and allowed to be overgrown by old-field pine. This type of soil is adapted to cotton, potatoes, corn, and other general farm crops, and to truck in the more sandy areas. Fruits and berries also do well. If the soil were heavily manured and properly prepared, alfalfa would likely prove a success. Clover does fairly well, while cowpeas give good returns and at the same time enrich the soil. Corn and sugar cane should be grown on the bottom lands of this type, where the moisture conditions are most favorable. The yield of cotton varies from one-fourth to three-fourths of a bale per acre, the average yield being a little more than one-third of a bale when a light application of commercial fertilizer is used.[a] Corn on the upland produces from 8 to 20 bushels,

[a] Samples of the Cecil sandy loam, procured from two unproductive fields near Auburn and Opelika, respectively, were studied by the wire-basket method to determine their manurial requirements. No definite rotation has been followed upon these lands, nor has any stable manure been applied. Upon one of them, however, a little commercial fertilizer is applied when planted to cotton. The yields average from one-fourth to one-third bale of cotton and about 7 bushels of corn per acre, and in 1905 one of them produced 12 bushels of oats per acre.

The results of the test with the wire-basket method show that cowpeas, to which lime was added, gave a very marked increase, as did stable manure. Good results followed the use of a complete fertilizer, both with and without lime, the addition of lime being, however, of decided benefit. Nitrate of soda gave a very good increase, but none resulted from the use of sulphate of potash or acid phosphate, either singly or together.

These results are held to apply strictly only to the fields from which samples were taken, but should prove of value on other areas of this type of soil in this locality.

and on the bottoms from 20 to 35 bushels under favorable conditions. A few oats are grown and only a moderate yield is secured. Sweet potatoes and garden vegetables are grown for home use.

The Cecil sandy loam can easily be brought to a fair state of productiveness. To improve this soil it should be plowed deeper, should be well pulverized, and the rotation of crops, including a frequent sowing of cowpeas, should be practiced. This type is the best general farming soil in the county under the prevailing methods of cultivation. It sells for from $8 to $30 an acre, $15 being about an average price.

Below are shown the average results of mechanical analyses of typical samples of the Cecil sandy loam:

Mechanical analyses of Cecil sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14608, 14610.....	Soil.....	3.2	19.6	12.2	28.9	11.1	14.4	9.8
14609, 14611.....	Subsoil	2.4	12.7	7.2	16.0	6.0	17.2	38.1

CECIL STONY LOAM.

The soil of the Cecil stony loam consists of a reddish-brown or grayish coarse to medium sandy loam or loam from 4 to 15 inches deep. Considerable coarse angular sand is present in the soil in some places, and quite a large quantity of mica is also seen in a few localities. Strewn upon the surface and mixed in the soil are from 20 to 60 per cent of stones, chiefly quartz, mica schist, and granite, while gravel and fine slaty fragments frequently occur. Where the percentage of stones is small the soil is tilled with considerable ease, but where the stones are more abundant tillage is quite difficult. The soil bakes and is subject to drought where the content of the mica particles is high. In many places the presence of stones, together with the hilly and broken topography, prevents the use of improved farm machinery.

The subsoil for the most part is a bright-red friable clay containing a small percentage of sharp, angular quartz sand. Occasionally there are a few stones in the first few inches, but generally it is free from stones. In some places where the type is derived from granite the subsoil is of a yellowish color, and frequently grades into partially decomposed rock.

This type occurs mostly in the northern two-thirds of the county. The largest bodies are found along Sougahatchee Creek in the western part of the county. Other areas of considerable size are found in the central part and to the southwest of Opelika. In the main it follows the stream courses and borders the Chatta-

hoochee River in many places. It occurs in strips and spots scattered throughout the Cecil sandy loam areas, and quite a large body of it lies to the southeast of Gold Hill.

The Cecil stony loam occupies hilly, rolling, and broken areas, with some gently rolling land on the broadest interstream areas. It is well developed on the hillsides near the streams, and in many places is quite precipitous. The drainage is excellent and the surface is so rolling in many places that it is a very difficult matter to prevent serious erosion, and many badly gullied areas occur. Terracing has to be resorted to in order to prevent this gullying in fields under cultivation.

The Cecil stony loam is a residual soil derived from the weathering of mica schist, granite, and gneiss. Considerable quartz is found on the surface. A large part of the type is forested to old-field pine, and other fields have recently been abandoned. The best areas, where the percentage of stones is small and the surface is not too rolling, can be used profitably for cotton and corn. The yield of cotton varies from one-fourth to one-half bale per acre. Corn gives low yields. A little sugar cane and sorghum are also grown.

Below are given the results of mechanical analyses of the fine earth of typical samples of this soil:

Mechanical analyses of Cecil stony loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14604	Soil	4.5	18.2	10.2	21.6	12.9	17.0	15.5
14605	Subsoil	6.1	14.8	6.1	12.7	8.1	13.8	38.3

CECIL CLAY.

The soil of the Cecil clay is a red or reddish-brown loam or clay loam from 4 to 6 inches deep. Sometimes the first 2 or 3 inches are a heavy red sandy loam, while in some other places the stiff red clay comes to the surface. In depressions a brownish clay loam forming a deeper and more productive soil is usually seen. Around Gold Hill the soil is a rich dark-red clay. Occasionally a few quartz or hornblende gneiss fragments are scattered on the surface. This type is locally known as the "red clay land." Under the present methods of cultivation it is somewhat difficult to till and its value is not fully appreciated. The subsoil to a depth of 36 inches or more is a bright-red clay, rather hard and usually crumbly, though sometimes tenacious, especially when wet. Occasionally a little mica occurs in the subsoil and this, together with the even texture, gives it a slightly greasy feel.

The largest areas of Cecil clay are found in the northern part of the county along the boundary line, the largest single body occurring about 5 miles northeast of Opelika. Other areas were mapped around Gold Hill, to the southwest of Waverly, and throughout the northwest part of the county. The surface is gently rolling to rolling for the most part, but some of it is hilly. Along the streams a few practically level strips are found. Most of the type is sufficiently rolling to insure good drainage, and only in the flattest areas near the streams or in slight depressions does the soil need artificial drainage.

The Cecil clay is a residual soil derived from the weathering of hornblende gneiss, schist, mica slate, and other metamorphic rocks. The bright red color is due to the presence of large quantities of iron.

The greater part of the Cecil clay is under cultivation. Of the remaining areas some are forested to oak, hickory, and other hardwoods, while others have been abandoned and left to grow up to old-field pine. This type is the best soil in the area for corn, oats, clover, and cowpeas, and is also well adapted to cotton. Cotton yields from one-third to three-fourths of a bale per acre, and on the best land averages about one-half a bale. Corn on the upland yields from 15 to 20 bushels, and on the bottoms from 25 to 50 bushels, and oats produces from 20 to 30 bushels per acre. Sugar cane on the bottoms gives good returns, and cowpeas make an excellent growth.

In order to improve this soil and make it less subject to drought it should be plowed in the fall to a depth of 8 inches, should be well pulverized in the spring, and should be sown to cowpeas at least once every two or three years. The Cecil clay is worth from $8 to $25 an acre.

Below are given the results of mechanical analyses of typical samples of this type:

Mechanical analyses of Cecil clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14600	Soil	2.0	9.1	8.9	23.9	9.1	19.4	27.5
14601	Subsoil	1.4	3.5	3.0	6.8	3.1	17.6	64.4

CECIL STONY CLAY.

The soil of the Cecil stony clay is a reddish-brown or red loam or red clay loam from 4 to 8 inches in depth. A shallow covering of reddish-brown sandy loam occurs in a few small areas. The subsoil is a stiff, compact red clay, extending to a depth of 30 inches or more. Sometimes the clay grades into partially decomposed rock at a depth of 30 inches. In most places the interstitial material of the soil is similar to the Cecil clay. Strewn upon the surface and mixed with the soil are found from 20 to 50 per cent of rock fragments, consist-

ing chiefly of gneiss and schist. A few quartz fragments are also observed in some localities. On some of the knolls the soil is very stony and cultivation is greatly impeded, while on the more gently rolling the quantity of stones is less and cultivation is not difficult. In a great many of the fields the stones have been piled in heaps or used in the construction of fences.

The Cecil stony clay is confined to the northwest part of the county, where it is closely associated with the Cecil clay and Cecil stony loam. The largest bodies occur in the vicinity of Gold Hill, to the south of Waverly and Roxana, and along Loblochee Creek. This type is well developed on the broad, rolling ridges, knolls, and hilly areas, some of the knolls and sharp ridges being quite rough and broken. On account of its rolling character the natural drainage of this soil is very good.

The Cecil stony clay is a residual soil derived from the weathering of hornblende gneiss, schist, and mica slate. A considerable part of it is under cultivation, but there are many abandoned fields. Some of it is covered with a heavy growth of hardwoods, chiefly oak and hickory. The soil is adapted to grain, cotton, cowpeas, and clover. Cotton produces from one-fourth to one-half bale, oats from 15 to 30 bushels, and corn from 15 to 25 bushels per acre. By proper treatment this soil can be made to produce almost double these yields. Clover does fairly well and cowpeas give fine returns. A little sugar cane is also grown.

The Cecil stony clay should be plowed deeper and should be well pulverized, since with a better preparation of the land it would give much larger returns. This would also allow the soil to absorb a larger proportion of the rainfall and thus enable it to withstand drought better.

The results of mechanical analyses of fine earth samples of the soil and subsoil of this type are given below.

Mechanical analyses of Cecil stony clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14802	Soil	3.1	8.6	6.1	18.1	12.6	27.3	24.3
14803	Subsoil	2.7	8.3	4.9	12.3	9.9	27.0	34.9

NORFOLK SANDY LOAM.

The soil of the Norfolk sandy loam is a medium to coarse sandy loam of grayish color, varying in depth from 10 to 30 inches, with an average depth of about 15 inches. Frequently a few gravel and stones are present in the soil. Spots of sand or sandy loam, slightly more than 30 inches deep, and also gravelly patches due to unequal

erosion, all too small to be represented upon the soil map, occur here and there throughout the type. The subsoil, where typically developed, is a yellow sandy clay. In some localities it is a mottled red and reddish-yellow sandy clay, and adjoining the Cecil types it becomes a red sandy clay or clay.

The largest areas of the Norfolk sandy loam lie in the southwest part of the county. The greater part of the State experiment farm at Auburn is located on this type. It occurs along and to the south of the Western Railway of Alabama in the vicinity of Loachapoka. A large body lies immediately south or Chewacla Creek and other areas are found about Smiths Station.

The Norfolk sandy loam occupies level or gently rolling areas. Most of it lies well for cultivation, and improved machinery could be used on a large part of it. The drainage is generally good, owing to the topography and the fairly open texture of the soil. The flatter areas need only a few open ditches through them to carry off the excessive rainfall.

This soil is derived from the weathering of the Lafayette beds of sands and clays. In the more level areas the soil is slightly more loamy and the texture more uniform than in the rolling areas, owing to the fact that on the slopes part of the fine material has been carried away in suspension. The largest quantity of organic matter is also found in the level areas.

Here, as in other areas, the Norfolk sandy loam is a good soil for truck crops, berries, and potatoes. These can be grown with profit where the type is near the railroad. Cotton is the most common crop, the yield varying from one-fourth to one-half bale per acre. Corn yields from 8 to 20 bushels. Some sugar cane is grown in the more loamy phases of the type where the moisture conditions are favorable, and some sorghum is sown for forage. Where the soil is fertilized oats give a fairly good yield. In the better areas, by applying coarse manures and commercial fertilizers, and by intensive cultivation and rotation of crops, the best growers secure a yield of a bale of cotton to the acre.[a] Land of this character brings from $8 to $30 an acre.

[a] In order to determine the manurial requirements of this soil two large samples were obtained from fields that have been under cultivation for many years. Upon one of them leguminous crops were grown a few years ago, at which time a commercial fertilizer was applied, consisting largely of acid phosphate with nitrate of soda and muriate of potash. In 1904 it was planted to oats, followed by sorghum, and a light dressing of the same fertilizer was applied to the former crop. In 1905 cotton was grown, no fertilizer being used, giving a yield of one-fourth bale per acre. The other sample was from a rolling, well-drained field that has been under cultivation for fifty years, cotton being the chief crop, though corn has been grown occasionally though with no regularity. Commercial fertilizer, at the rate of 150 to 200 pounds per acre, is usually applied to cotton, the yield of which averages about one-third

Below are shown the average results of mechanical analyses of typical samples of the soil and subsoil.

Mechanical analyses of Norfolk sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14618, 14620.....	Soil.....	3.7	22.9	13.9	24.9	10.5	16.2	7.4
14619, 14621.....	Subsoil.....	3.3	20.0	11.6	19.7	8.3	14.6	22.2

NORFOLK COARSE SAND.

The soil of the Norfolk coarse sand is a coarse to medium sand, with an average depth of 10 inches. It contains from 10 to 50 per cent of quartz gravel, and is generally brown in color. The average gravel content would not probably exceed 10 or 15 per cent, while the size of the gravel varies from one-eighth of an inch to 2 inches in diameter. Some spots of this type are quite gravelly on the surface, but there are large areas which contain but a small amount. The surface soil in some places is whitish or yellowish in color, probably where the small quantity of organic matter originally contained in the soil has been leached out. In a few of the more level areas the soil is somewhat loamy. The newly cleared lands contain considerably more organic matter than the average field, but this is retained by the soil for only three or four years. Owing to its open nature, the soil is the most easily worked of any in the county, shallow cultivation being all that is necessary.

The subsoil is a yellowish coarse sand containing a small percentage of gravel. The sand particles are usually somewhat coarser than in the soil. Sometimes the sand grades into a mass of gravel, while there are areas where the sand passes into a coarse, sticky sandy clay at a depth of about 28 inches. Both the soil and subsoil are loose, open, and porous.

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bale to the acre. Corn gives a yield of 10 to 12 bushels per acre. This field has not been manured recently.

The results of the test of this soil by the wire-basket method showed a very great improvement from the use of cowpeas as a green manure, together with an application of lime, the results from this combination being much better than with manure, lime, nitrate of soda, sulphate of potash, or acid phosphate, either singly or in combination with each other.

Satisfactory increases were made, however, by nitrate of soda, barnyard manure, and a combination of nitrate of soda, sulphate of potash, and acid phosphate, that from the last treatment being somewhat better when lime was added to the mixture. Lime alone gave a small increase, but superior to that produced by the use of either acid phosphate or sulphate of potash.

In conducting this test wheat plants were used as an indicator, and while the results are held to apply strictly only to that crop or to kindred crops upon these fields, they are doubtless of value as indicating with some accuracy the manurial requirements of this type of soil throughout this area.

This type is confined to the southern part of the county, where it occurs in a broad belt, beginning about 2 miles east of a line drawn north and south through Auburn, and extending to within about 1 mile of the Chattahoochee River. Large areas of this soil were mapped in Macon County in the survey of 1904, where it forms an extension of the large body mapped here. The Norfolk coarse sand is not limited to any single topographic position, but occurs on comparatively level, rolling, and even hilly areas. The broad interstream areas are usually nearly level, while the areas near the large streams are generally more broken. The rolling surface of this type, together with the loose, open texture of both soil and subsoil, insures excellent drainage. It is an early and warm soil, and one upon which farming operations can be carried on immediately after a rain.

The Norfolk coarse sand is derived from the Lafayette beds of sand and clay. It probably represents deposits from which the smaller particles have been removed in suspension in the drainage waters.

A few areas of this type are forested with longleaf yellow pine, while considerable areas are covered with a scrubby growth of oak and some with broom sedge and old-field pine. Inasmuch as this soil is subject to serious drought, it is unsuited to grain or grass crops. Early truck crops, small fruits, and berries can be successfully and profitably grown in the southeast corner of the county, where they can be shipped to Columbus, Ga. A very large proportion of the Norfolk coarse sand is under cultivation, probably because it is very easily tilled. The minimum yields are from one-eighth to one-fifth of a bale of cotton and from 4 to 5 bushels of corn per acre under favorable conditions without fertilizer. Where considerable quantities of barnyard manure or from 200 to 400 pounds of commercial fertilizer are applied yields of one-fourth to one-half of a bale of cotton, from 5 to 8 bushels of corn, and from 50 to 75 bushels of sweet potatoes per acre are secured. The yields are almost directly proportional to the quantity of fertilizer applied. The soil is so open and leachy that the effect of plowing under green manures is said not to last for more than one year. The growers have found it more profitable to use commercial fertilizers and stable manure, and this is the general practice. [a]

Since the advance in cotton prices during the last few years the Norfolk coarse sand has increased greatly in value, and to-day improved farms on this type sell for from $5 to $17 an acre.

[a] Samples of Norfolk coarse sand from two very unproductive fields near Opelika and Chewacla were used in a study of their manurial requirements of this type. The fields had been cultivated for many years, and at present from 4 to 6 acres are required to produce a bale of cotton, while 6 bushels of corn per acre is the average yield.

The result of tests by the wire-basket method show that both acid phosphate and sulphate of potash when used singly or together are of little benefit to the soil. Nitrate of soda gave very good results alone and in combination with sulphate of potash, but

The following table gives the average results of mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Norfolk coarse sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent*	*Per cent.*
14624, 14626	Soil	9.5	44.2	16.4	16.6	3.3	4.9	4.7
14625, 14627	Subsoil	9.4	40.9	15.5	17.1	3.5	7.4	5.1

NORFOLK GRAVELLY LOAM.

The Norfolk gravelly loam to a depth of from 12 to 24 inches consists of a gray coarse to medium sandy loam, containing from 15 to 60 per cent of gravel. A few iron concretions and rounded stones are seen on the surface. The gravel ranges in size from one-eighth of an inch to 2 inches in diameter, is usually rounded, and contains enough iron to give it a dull-brown color. In most areas the proportion of coarse material is not sufficient to interfere to any great extent with cultivation. The subsoil is a yellow sandy clay, commonly containing a small quantity of gravel in the first few inches, but generally carrying no coarse material below 24 inches. Near the line of contact with the Cecil types the subsoil is a reddish sandy clay, or clay.

The Norfolk gravelly loam is found in the southwest part of the county, south and west of Auburn, in the southeast part of the county along Wetumpka Creek, and to the northwest of Phœnix. The type is closely associated with the Norfolk sandy loam and the Norfolk sand. The Norfolk gravelly loam commonly occurs on ridges, knolls, slopes, and hillsides, and is typically developed near the stream courses. Some few areas are gently rolling, except near the streams, where the surface is more broken. Owing to the topographic features and the texture of the soil the type has good natural drainage. The lightest phase is subject to drought.

The Norfolk gravelly loam owes its origin to the weathering of the sandy mantle of the Lafayette sands, gravel, and sandy clays. In many places where the type occurs as slopes and bands the finer material has been washed out, leaving a rather coarse sandy loam with a high gravel content. The type is largely the result of erosion.

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the increase was not so great from a combination above with acid phosphate. A combination of all three salts both with and without the addition of lime was very beneficial. Manure also produced a very large increase, but was not equal to an application of green manure in the form of cowpea vines to which a little lime was added.

The results of this test, while strictly applicable only to the fields from which the samples were taken, no doubt indicated in some degree the treatments best suited to this type of soil in this locality. They strongly emphasize the necessity of supplying soils of this texture with an abundance of humus-forming material.

Part of the type is covered with a scrubby growth of oak and pine. It is best suited to cotton, fruits, berries, and truck crops. The more level areas where the soil is not more than 12 to 15 inches deep can be made to produce good yields of cotton. There are some areas, however, that should be reforested, as they are unfit for cultivation. Cotton is the chief crop grown upon this soil, the yields varying from one-fifth to one-half bale per acre. On the experiment station farm at Auburn, where the soil has been heavily fertilized and rotation of crops practiced, nearly 1 bale of cotton per acre has been obtained. Corn gives low yields, and only a small acreage is grown. A little sorghum is grown for forage and also some sugar cane. Sweet potatoes and most of the truck crops do well. The uneven surface of a part of the type, the presence of gravel and stones, and its susceptibility to drought make this a less desirable soil than the Norfolk sandy loam. The use of coarse manures and fertilizer, with the growing of cowpeas, is said to add greatly to the productivity of this soil. This type sells for from $5 to $15 an acre.

Below are given the results of mechanical analyses of fine-earth samples of the soil and subsoil of this type:

Mechanical analyses of Norfolk gravelly loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14614	Soil	5.5	17.2	11.2	21.8	14.6	20.5	8.8
14615	Subsoil	4.4	12.8	8.6	19.5	12.1	21.4	20.8

NORFOLK SAND.

The soil of the Norfolk sand consists of a gray or whitish incoherent sand extending to a depth of about 8 inches. The soil is of medium texture and sometimes contains a small percentage of fine gravel. To the southwest of Auburn a few small areas were found in which the sand was comparatively fine in texture. There is a very small quantity of organic matter present, except in the depressions, where it has accumulated sufficiently to give the soil a dark-gray color. The subsoil consists of a yellowish sand of medium texture, sometimes becoming coarser at 30 inches and extending to a depth of 3 feet or more. The yellow sandy clay, which everywhere underlies this type at varying depths, is sometimes encountered at from 28 to 36 inches, but only in local spots. Where the clay is less than 28 inches below the surface the soil has been mapped as Norfolk sandy loam.

The largest area of the Norfolk sand, covering 4 square miles, lies about 4 miles west of Auburn. Other small areas of 1 square mile or less in extent occur throughout the southwestern part of the

county. This type is closely associated with the Norfolk sandy loam, and a few spots occur in the large areas of the Norfolk coarse sand.

The surface of the Norfolk sand varies from gently rolling to rolling. On account of its loose, open character the drainage is apt to be excessive and crops often suffer from drought. The soil is derived from the materials of the Lafayette formation.

The yields of crops on the Norfolk sand are very low.[a] It produces from one-fifth to one-third of a bale of cotton and 8 bushels of corn per acre. Potatoes do fairly well. The Norfolk sand is especially adapted to trucking and should be devoted more extensively to this industry. Cabbage, lettuce, radishes, berries, and all small fruits do well.

The following table gives the results of mechanical analyses of samples of this type:

Mechanical analyses of Norfolk sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
14622	Soil	4.6	34.6	15.5	26.7	6.4	9.2	3.0
14623	Subsoil	5.0	33.1	14.9	27.1	6.1	9.2	4.3

ROUGH STONY LAND.

The soil of the Rough stony land is a gray or yellowish fine sandy loam to a depth of from 12 to 18 inches. It contains from 20 to 90 per cent of subangular stones, chiefly quartzite, with a few fine-grained sandstone fragments. In a few localities the stones are rounded and a considerable quantity of quartz is found. A few areas of this soil are completely covered with stones. The subsoil is a yellow sandy clay or heavy fine sandy loam or red clay, the latter occurring chiefly in the eastern part of the county associated with the Cecil series. In some places a few stones occur in the subsoil, but most of it is practically free from stones.

[a] A study of the manurial requirements of the Norfolk sand was made in the Bureau laboratories, using samples taken near Auburn and Opelika. The fields represented have been under cultivation for fifty years or more, and at present are producing between one-fifth and one-fourth bale of cotton and from 4 to 5 bushels of corn per acre.

No regular system of rotation has been followed, corn being grown once every four or five years. Occasional applications of low-grade fertilizer have been made for cotton but none for corn, and none for either crop in recent years.

The treatments giving the best indications were, in order named: Manure; cowpeas and lime; complete fertilizer and lime; complete fertilizer; nitrate of soda. Sulphate of potash and acid phosphate, either singly or together, show little if any benefit. The organic treatments were far superior to all others and emphasize the importance of using humus-forming manures in the case of this soil.

Wheat plants were used as indicators in this test and the results apply strictly only to this and related plants. They may, however, prove of value to other crops.

This type occurs in small areas in the south-central and eastern parts of the county. It occupies long, narrow ridges and rounded knolls, and has an elevation in most places considerably above that of the surrounding soils. The hills and ridges are commonly spoken of as mountains, and seem to be the extreme southwest end of a chain of hills which are typically developed in Georgia, and are known as Pine Mountains. The natural surface drainage of this type is excellent.

The stone content of the Rough stony land comes from a ledge of quartzite which sticks up through the Lafayette formation in the southern part of the county and caps the hills and ridges of the eastern part. The soil itself is derived from Lafayette material modified by the weathering of the quartzite. In the eastern part of the county it appears to be derived from gneiss and schists, and such areas are marked by a bright-red stiff clay subsoil.

The Rough stony land, owing to its rough topography and stony character, is unsuited for agricultural purposes. Only a few spots along the edges of the type where the stones are not too numerous are cleared and planted to cotton and corn, which produce low yields. This type was originally forested with longleaf yellow pine, some of which is now standing, but in many places this has been cut off and a growth of scrubby oaks has taken its place. This type should be reforested, as it can never be cultivated profitably, and its chief value lies in its timber. Orcharding might pay on part of it if the climatic conditions were favorable.

No samples of this soil were collected for mechanical analysis.

MEADOW.

The Meadow areas vary widely in texture, which is determined to a large extent by the surrounding soils. The soil is of alluvial origin, being composed of the sediments left by the overflow of the streams, modified in many places by wash from adjoining higher lying areas. It occurs in narrow strips along the streams scattered throughout the county and occupies the lowest positions, and on this account is poorly drained and subject to frequent inundation. Much of it is thus unfit for general agricultural purposes under present conditions.

A large part of the Meadow is covered with a growth of bay trees, gums, pines, and briers. Only a few spots here and there are under cultivation, but in such places good yields of corn and sugar cane are produced. Most of the type is used as pasture during the greater part of the year and some portions of it afford fairly good grazing. By straightening the natural drainage ways and cutting lateral ditches leading into them some of this soil could be reclaimed. Such areas would be adapted to corn and sugar cane, and large yields could be secured.

No samples of Meadow were taken for mechanical analyses.

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam occurs in narrow strips in the southwest part of the county, along the boundary between Lee and Macon counties, and is not of sufficient extent to merit a detailed description. Large areas of this soil were mapped in Macon County, but it is not typically developed to any great extent in Lee County. It is closely associated with the Norfolk sandy loam, the two types merging into each other over considerable areas along the line of contact. The agricultural value of the Orangeburg sandy loam in Lee County is about the same as that of the Norfolk sandy loam.

No samples of this soil were collected for mechanical analyses.

SUMMARY.

Lee County lies along the Alabama-Georgia line, about midway of the State north and south and about 60 miles from Montgomery. It has an area of about 629 square miles. The surface, which varies in elevation from 250 to 820 feet, is rolling to rough and hilly. The drainage systems are well developed.

Lee County was organized in 1866, but settlement took place much earlier. At present the majority of the inhabitants are negroes. While a large part of the land is now under cultivation, there is excellent opportunity for the home seeker. Cotton is the dominant crop, and while corn, oats, wheat, and hay are grown the production is insufficient to supply the local demand. Relatively few farm animals are kept. Potatoes and truck crops, sugar cane, sorghum, and cowpeas are other minor products. The trucking is confined to the southeastern part of the county. So far little attention has been paid to adaptation of soils to crops, to rotation of crops, or to modern methods of cultivation.

The price of agricultural lands has increased greatly within the last few years, owing to the stimulation of high prices for cotton, but even now, on the basis of its earning capacity, land is remarkably cheap. The best farm lands along the railroad can be bought for $10 to $30 an acre, while in other parts of the county the price ranges from $5 to $17 an acre.

The soils are varied, being derived from two distinct physiographic provinces—the Piedmont Plateau and the Coastal Plain. The former, consisting of a complex system of crystalline and metamorphic rocks, gives rise to members of the Cecil series. The Coastal Plain, here represented by the Lafayette formation, is almost entirely occupied by the Norfolk series, with a minor development of the Orangeburg sandy loam and small areas of Meadow.

The Cecil sandy loam is the most important soil, taking into consideration the area it occupies and its wide crop adaptation. It is

easily tilled and owing to the clay subsoil it can be built up to a relatively high state of productiveness. It is adapted to cotton, corn, oats, cowpeas, clover, potatoes, berries, and some areas of it to alfalfa. Deeper plowing, more thorough cultivation, and the use of green manuring crops are recommended for the improvement of this type.

The Cecil stony loam, where the percentage of stones is low and the surface not too broken, is a good cotton soil, but only fair for corn and oats. The badly gullied and rougher areas of the type are practically unfit for agricultural purposes.

The Cecil clay is naturally the strongest soil in the county and can be made very productive by deep plowing, thorough cultivation, the turning under of cowpeas or other green manuring crops, and the growing of crops in suitable rotations. It is somewhat difficult to till under present methods of cultivation. It is well adapted to corn, oats, clover, cotton, and cowpeas. The Cecil stony clay differs from the Cecil clay in that the surface is more broken and hilly and strewn with stones which hinder tillage to some extent.

The Norfolk sandy loam is an easily tilled soil and the best for general farming of any of the Norfolk types in this county. It is well adapted to cotton and when fertilized produces fair yields of corn and oats. The lightest phase is well adapted to the production of potatoes, berries, and truck crops. The soil needs organic matter, which may be supplied by green or stable manure.

The Norfolk coarse sand, owing to its open texture and consequent liability to suffer seriously from drought, is unsuited to grain crops. It is easily tilled, quite warm, and well drained, and is best adapted to truck crops and potatoes, although when fertilized it gives a fairly good yield of cotton. The Norfolk gravelly loam, in the more gently rolling areas, is a fairly good cotton soil. Fruits, berries, and potatoes do well. Some of the lighter textured and more gravelly slopes are droughty.

The Norfolk sand is preeminently a trucking soil and near the railroad should be devoted to that industry. It is one of the main truck soils of the Atlantic coast. It is warm, well drained, and very easily tilled. However, when fertilized, cotton does fairly well.

The Rough stony land, by reason of its topography and very stony character, is entirely unsuited for agricultural purposes and should be kept in forest.

The Meadow land, occurring as it does in low-lying strips along streams, is only suited to pasturage. Some of it can be farmed, but the crops are liable to be destroyed by floods.

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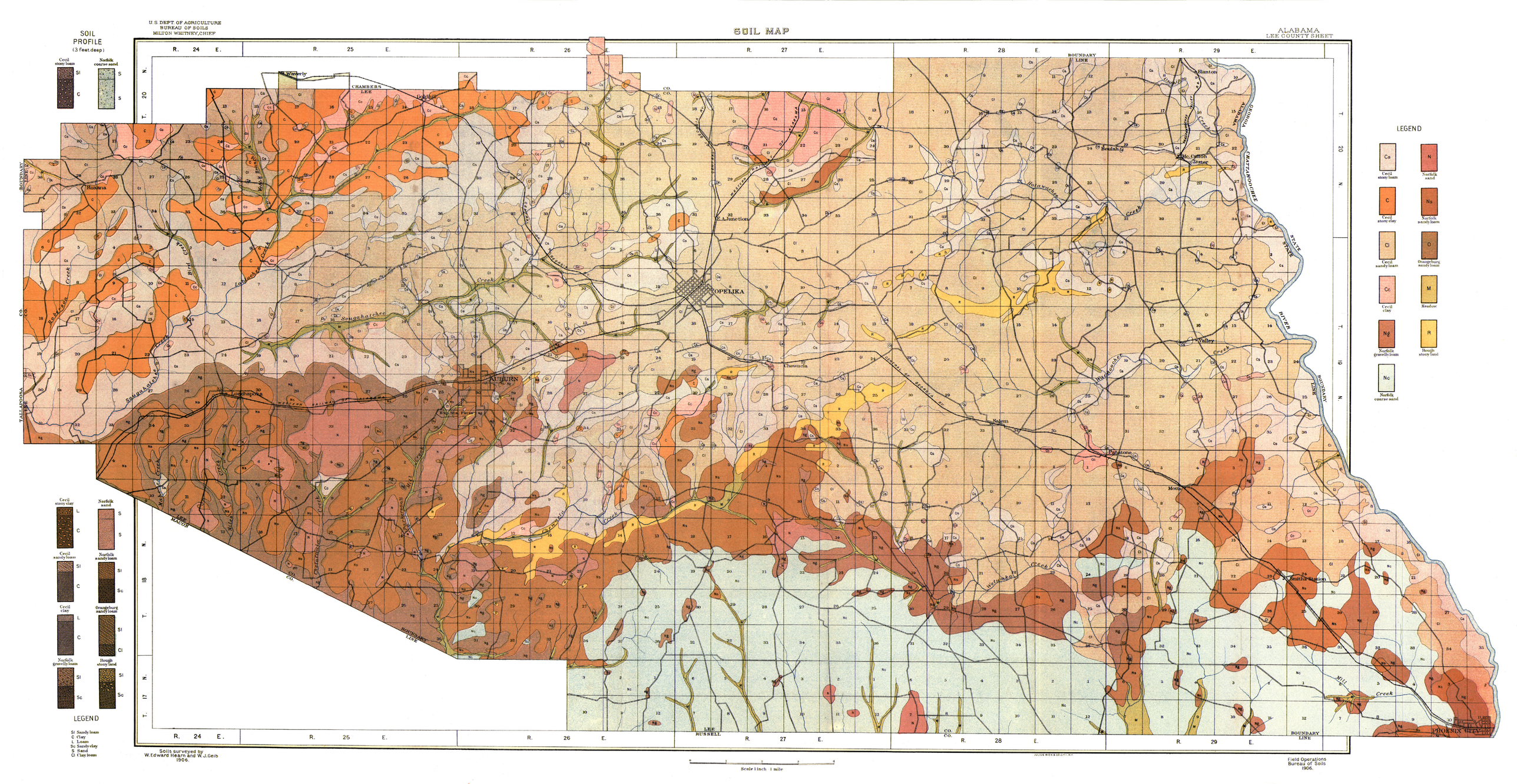
SOIL MAP
ALABAMA
LEE COUNTY SHEET
U.S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
SOIL PROFILE
(3 feet deep)
Cecil stony loam
Norfolk coarse sand
Cecil stony clay
Norfolk sand
Cecil sandy loam
Norfolk sandy loam
Cecil clay
Orangeburg sandy loam
Norfolk gravelly loam
Rough stony land
LEGEND
St Sandy loam
C Clay
L Loam
Sc Sandy clay
S Sand
Cl Clay loam
R. 24 E.
R. 25 E.
R. 26 E.
R. 27 E.
R. 28 E.
R. 29 E.
T. 20 N.
T. 19 N.
T. 18 N.
T. 17 N.
Roxana
Waverly
Gadsden
Blanton
Beulah
Mt. Cotton
Forest
E. A. Junction
OPELIKA
AUBURN
Loachapoka
Chewacla
Valley
Salem
Phantone
Mount
Smiths Station
PHOENIX CITY
CHAMBERS
LEE
MACON
RUSSELL
TALLAPOOSA
CHATTAHOOCHEE
STATE LINE
BOUNDARY LINE
Soils surveyed by
W. Edward Hearn and W. J. Geib
1906.
Scale 1 inch 1 mile
Field Operations
Bureau of Soils
1906.
LEGEND
Cs Cecil stony loam
N Norfolk sand
C Cecil stony clay
Ns Norfolk sandy loam
Cl Cecil sandy loam
O Orangeburg sandy loam
Cc Cecil clay
M Meadow
Ng Norfolk gravelly loam
R Rough stony land
Nc Norfolk coarse sand